



CHOCF 2.12
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MEMORANDUM

DATE: December 10, 2008

TO: Rose Longoria, Yakama Nation Fisheries Resource Management Program

FROM: Sheila Fleming, P.E., RIDOLFI Inc.
Kristin Callahan, RIDOLFI Inc.

SUBJECT: Comments on the Voluntary Group's Response to Comments on the *Harbor Oil Risk Assessment Scoping Memorandum* and *Preliminary Site Characterization Summary Report*

Ridolfi has reviewed the above referenced documents and would like to submit the following comments and requests for clarification.

Risk Assessment Scoping Memorandum

1. The VG has agreed to include a recreational fisher scenario (see response 7a), however:
 - a. The consumption rate of 6 meals/year (or 3.7 g/d) is too low. The mean fish intake of recreational freshwater anglers ranges up to 17 g/d (EPA, 2002), or approximately 27 meals/year. For Reasonable Maximum Exposure (RME) estimates, the default intake rate is 54 g/d (EPA, 1991), or approximately 87 meals/year. If only one person fishes in the lake year round, the lake would likely be able to sustain such a harvest (e.g., about seven carp per month). A fish consumption rate of 17 g/d (CT) and 54 g/d (RME) should be used for this scenario.
 - b. We concur with EPA, calculating fish concentrations using BSAFs is not adequate; fish tissue data must be collected from the lake. ODHS' Public Health Assessment of Harbor Oil stated that "the lack of fish tissue data is a critical data gap since sensitive populations, including women of childbearing age, children under six and immunocompromised individuals may be consuming fish from Force Lake" (ODHS, 2004). Such an individual cannot be ruled out for an angler.
2. The VG has agreed to use the ORNL 2008 screening levels, and claim that these account for both childhood and adult exposures over a lifetime (which is why they are not evaluating these separately for the residential scenario; e.g., see responses 7d, 8e, and 13). At what point then, if screening levels are exceeded, will these separate scenarios be pursued using different exposure parameters to evaluate the degree of risk, similar to that of a recreational fisher (e.g., see response 13)? The complete risk assessment process should be considered and clarified.
3. Does EPA agree that there is no potential for human exposure to wetland soils (see response 14c)? Previous notes indicate a recommendation for VG to apply a residential scenario to the entire site, including wetlands (and it is possible, for example, that children may wade through a wetland).





4. Shrews are terrestrial mammals that forage for worms, insects, seeds, etc. and often dig burrows for caching food and hiding from predators; thus, direct soil contact should be a significant pathway (see response 18d). Similarly, water ingestion should be a significant pathway for ruddy duck and great blue heron, which feed in the water (counter to EPA's statement; see response 19c).

Preliminary Site Characterization Report

5. The VG states there is no pathway for direct exposure to lake sediments; although this may be the case (considering a depth below the biotic zone with no anticipated human disturbance), the fact is that this is a characterization effort and the horizontal as well as vertical extent of site contamination must be defined (see general response 1). Sediment concentrations that are "low compared to PECs" are based on a limited investigation; characterization is not complete. After the investigation is complete, at that point risk assessment and management decisions may be made based upon exposure potential.
6. The VG states that LNAPL characterization is adequate (see general response 2), but this statement is based on sampling a limited number of wells, particularly along the site boundary where more complete characterization is needed of the spatial extent of site contamination (only four wells exist along the entire southern border). We concur with EPA, the same situation applies to benzene and the need for greater groundwater characterization in general (see general response 4).
7. Even if the VG ultimately finds that DDT is a regional contaminant, off-site soil sampling should be conducted to characterize the boundary of contaminant migration in general (perhaps with additional sampling onsite to ground truth the literature search for sources). For example, benzene was detected south of the site (samples WS-21 to -24, new Figure 4) and southwest (samples WS-08 and -13) with no boundary identified; and DDT was detected in this same area at concentrations exceeding screening levels (new Figure 9). We concur with EPA, additional soil samples should be collected, particularly in these border areas.
8. Per EPA's request, the VG lists the screening criteria used, including Region 6 levels. As cited in responses to the Risk Assessment Scoping comments, the ORNL levels (2008) should also be cited.
9. Nature and extent: Revised Table 6-1 presents the proposed Phase 2 sampling locations and analyses. In their response to comments, the VG often indicates that the objective for a specific sampling location is to "refine extent for purposes of estimating remedial quantities in soil." In other words, they are proposing additional samples to bound the extent of certain constituents in soil based on the analytical results for nearby Phase 1 samples. I agree with this approach; however there appears to be some inconsistencies on how they are selecting the analyses for each location.



- a. If I can follow the VG's logic, proposed Sample SL-33 also should be analyzed for pesticides, TPH and VOCs; SL-38 should be analyzed for PCBs; SL-41 should be analyzed for PCBs and pesticides (at all proposed depths); and SL-45 should be analyzed for PCBs.
 - b. In response to comment 19.d., the VG indicates (in the last sentence) "*Additionally, all metals will be analyzed, as was done during Phase 1.*" However; this is not consistent with what is presented in Table 6.1 which proposes the analysis of individual metals (As, Pb, and Hg) for selected samples. Since the laboratory generally analyzes for all metals, I suggest that the VG reports all the results. This does not apply to mercury which is analyzed by a different method.
10. Groundwater: It is not clear whether the VG is going to collect additional rounds of groundwater data. I believe we discussed quarterly monitoring at the September 10, 2008 meeting; however I do not know if the VG agreed to that. As far as I know, the VG has not been conducting quarterly monitoring, exclusive of monthly water level measurements, so it would take another year to gather four full quarters of data. I am not sure how this would fit into the overall RI/FS schedule.

I assume that we also will have an opportunity to review the Phase 2 FSP, so our comments regarding groundwater monitoring frequency and metals analyses may be addressed in the Phase 2 FSP/QAPP.